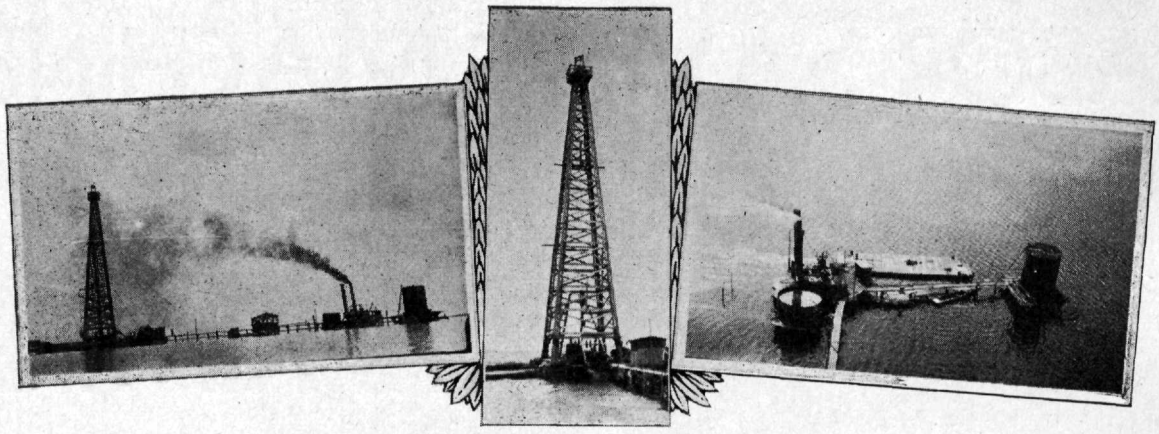


6500 FOOT WELL IN THE MIDDLE OF A LAKE IN LOUISIANA

SIDELIGHTS OF A SUMMER TOUR OF THE PETROLEUM PRODUCING INDUSTRY

By E. V. O'ROURKE, Assoc. Prof. of Mine Engineering

I BEGAN the "rounds" of the oil fields this past summer at Oklahoma City. Mr. R. T. Lyons, an official of the Skelly Oil Company of Tulsa, Oklahoma, arranged the trip for me. It was taken with Mr. Colin C. Rae, a petroleum engineer for the Skelly Company. Mr. Rae is an easterner by birth, but was educated as a mining engineer at the University of California. He has had a wide experience in oil and gas production through California, Wyoming and the Mid-Continent area.

The Oklahoma City "pool" is named from the capital city of Oklahoma. It was discovered in December 1928. Seventeen hundred acres of productive area are within the city limits. The northern part of this area was formerly occupied by city dumps and squatty shacks inhabited by colored people. Rotary drilling methods are used in the field; very heavy equipment of all types is the rule. The geological structure of the field is a pronounced faulted anticline.

Depths to the six producing horizons range from 6100 to 6400 feet. The cost of a completed well amounts to one hundred thousand dollars. The Wilcox Sand is the most prolific producing formation. Wells flowing oil from the Wilcox have already produced 45,000,000 barrels of oil. Three hundred and fifty-nine holes have been drilled into the Wilcox and 349 of these are producers.

Production in the Oklahoma City field is prorated on a basis of two-thirds of one per cent of the daily potential plus a flat twenty-five barrels allowable per well. The potentials are usually based on a four-hour test and the daily potential is six times that amount for the period.

From geological deductions it is thought that 1750 acres underlie a closely built-up section of Oklahoma City, but so far no permits have been granted to drill. Insurance companies have threatened to withdraw protection from the city if the built-up area is allotted for drilling purposes.

Cuts Courtesy Pure Oil News

The entire actual production of the Oklahoma City field is held to about 90,000 barrels of oil per day of twenty-four hours.

We lived in the Field Superintendent's house and had our meals in the city.

Moon No. 1 was the particular well that Mr. Rae had to watch. It was drilling at a depth of 6300 feet. One of his duties was to decide from the drill cuttings just when the drill penetrated the Wilcox formation. He made his examinations with a microscope. We spent two days visiting producing wells and drilling wells. I noted the extra heavy special equipment for the control heads. Three enormous wheels attached to rods ran out from the shut-off valves so that the well could be closed from any one of three directions. Every precaution had to be taken to keep wells under control. Pressures at the casing head were sometimes 2200 pounds per square inch. Some sand came with the oil and it had a cutting action on the various connections.

One afternoon a few quartz grains were discovered in the shale cuttings of Moon No. 1, which indicated that the hole had reached the Wilcox Sand. Mr. Rae left orders as to the final depth to drill and we started for Cunningham, Kansas. Cunningham is about 80 miles west of Wichita. About a mile north of the town the Skelly Company is developing a new field. They have leased 22,000 acres in the general area. From geological data furnished to me, there is a tremendous structural uplift. The company has already found commercial production in three tests drilled there, a high gas pressure and huge volume of gas accompanies the oil. The region has all

the earmarks of a worth while pool. Many visitors and scouts of rival companies were among those present because of the importance of the tests. I think the field is about 50 miles to the nearest commercial petroleum production.

Mr. Lyons, Vice President, and Mr. R. B. Rutledge, Chief Geologist of the Skelly Company, and I went on a trip through various Kansas oil fields, viz., Ritz Canton, Burton, Voshell. They also checked over some of the field work of their geological force.

Returning to Cunningham after a few days, I saw the process of killing a well by means of mud-laden water under high pressure. Mr. H. M. Stalcup, executive head of the producing division, and his son Joe had arrived during our absence. We lived in a "lease" house near the wells and had meals in Cunningham. The meals were enormous, each one sufficient for three or four people. Mr. Rae told the lady he would take eggs instead of oatmeal for breakfast, so she brought six to him.

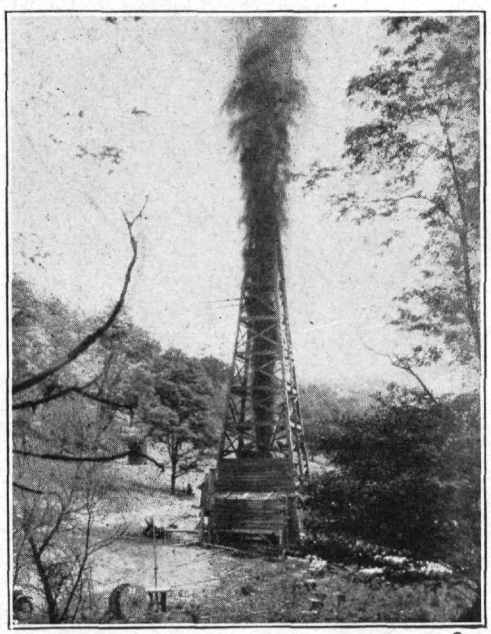
Mr. Rae stayed on at Cunningham to handle the details concerning the wells there and I returned to Tulsa.

A Mr. Womsley from Portsmouth, Ohio, was field superintendent in Cunningham.

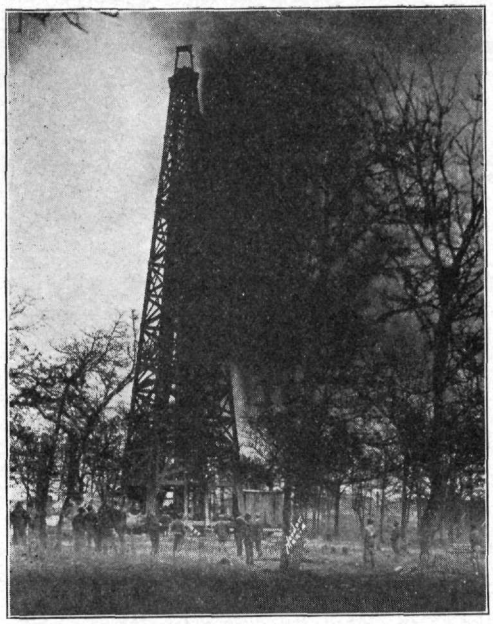
Next, I visited the U. S. Bureau of Mines Petroleum Experiment Station at Bartlesville, Oklahoma. I went there with Mr. John Hayward, Superintendent of Production, and Dave Hawthorne, a petroleum enginer of the Barnsdall Petroleum Company. Mr. Hawthorne and I worked together for the old Marland Oil Company on repressuring experiments in Eastern Kansas a few years ago.

A great many interesting experiments are being carried on in the Station. We spent the day with Mr. Ben Lindsay and Mr. C. E. Reistle, investigators for the Bureau of Mines. Most of the discussion was concerned with "Bottom Hole Pressures" in Eastern Texas.

Later on I made a trip with Mr. Rae to the Texas Panhandle fields. The surface elevation out there is about 3200 feet. We made our headquarters in the Schneider Hotel at Pampa, Texas. Pampa is nearly 400 miles west of Tulsa. The nights were cool, but days very warm. There is a new branch of the Burlington Railroad into Pampa. The Santa Fe also has a line into the city. The town is certainly a fine example of a new western place. The surface topography of the Panhandle consists of plains, sometimes eroded badly, forming gulches.



A WELL JUST AFTER SHOOTING



SHOOTING A BIG WELL IN TEXAS

The Panhandle fields are nearly 100 miles long and very few miles wide. In Gray County the holes are drilled to 2500 feet by Rotary and then finished by cable drill methods. The production is found in a granite wash or a dolomitic limestone at a depth which just about corresponds to sea level.

I saw the Skelly Company bring in a well on their Saunders lease near Lefors. It made 2600 barrels a day for five days. The well was also flowing at the rate of 30,000,000 cu. ft. of gas per day. All the gas was blown into the air.

We rode through and stopped at various places on the Shaffer Ranch. This group of lands includes 11,000 acres and the Skelly Company is the oil field operator. I forget the number of wells already drilled, but there are 250 proven locations still to be drilled.

The company was installing a unit power as an experiment for pumping a group of wells. Sixteen wells are hooked on to the power by means of transmission rods. One well so connected is 3250 feet from the power house. A Superior gas engine made in Springfield was doing the work. We also saw a geared pumping unit on one of the Gulf Company leases.

The cost to drill a well in the Panhandle of Texas is about $17,000. The actual production for the entire field is 50,000 barrels a day. Proration in the field is based on 14% of potential production.

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Petroleum Industry

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There is an enormous production of natural gas in the Panhandle. Gas lines coming into the territory have a carrying capacity of 980,000,000 cu. ft. per day. At present 200,000,000 cu. ft. per day is being sent out.

I saw for the first time a Carbon Black plant in operation. It was located near Skellytown, Texas. The plant had a capacity of 90,000 lbs. of carbon black per day.

During the summer I visited a great number of men whom I have known for many years. Mr. J. D. McNutt is General Manager of the Southwest Division of the Pure Oil Company, with headquarters in Tulsa. Mr. E. A. Carr, '18, of this school, is his assistant. I knew Mr. McNutt years ago when I was prospecting for the Ohio Cities Gas Company in Eastern Kentucky.

A number of my companions in the early days of the Venezuelan oil invasion are out in the Southwest. I saw Bela Hubbard, who is now in charge of Geophysical work for the Carter Oil Company, and Glenn Hawkins, Micropaleontologist for the same company. Visited J. T. Dale, who is with the Amerada Company, also J. M. McGirl, at present an independent operator. Mr. R. T. Lyons of the Skelly Company worked for the Maracaibo Exploration Company. We had long talks of the "old days."

I shipped back about 60 pounds of oil sand cores and drill cuttings, most of them were given to me by Mr. R. A. Brant of the Atlantic Oil Producing Company. All are cordially invited to drop in to see them.

Mr. Albert Schnaufer, a junior here at Ohio State, was taking the summer field course of the University of Oklahoma out there this summer. He and I visited some of the Petroleum Engineering offices in Tulsa.

While there, I attended a meeting and luncheon of the Tulsa Geological Society, saw some old friends, and became acquainted with a number of the members. I also visited Tulsa University, where a Petroleum Production Engineering course is offered. The work is in charge of Prof. Anderson from Wisconsin University. At the time of my trip production in the petroleum industry was about 85% of normal. Nearly all the companies made some profit during the second quarter of the year.